

## CLAIM AMENDMENTS

Claims 1 - 8 (canceled)

1                   Claim 9. (Previously Presented) A device for measuring  
2                   electrical potential comprising:

3                   an electrode body in the form of a spike adapted to be  
4                   driven into the ground and formed with two electrically separate  
5                   surfaces positioned to contact the ground simultaneously the ground  
6                   forming a sample;

7                   an electrical excitation source connected to one of said  
8                   surfaces for feeding an electrical excitation signal to said  
9                   sample, said one of said surfaces being a jacket of said body in  
10                   the form of a metal tube, the other of said surfaces for measuring  
11                   an electrical potential in the ground being formed upon a pointed  
12                   solid metal tip of said spike adapted to be driven into the ground;  
13                   and

14                   an electrical potential measuring unit connected to the  
15                   other of said surfaces for measuring an electrical potential in  
16                   said sample resulting from application of said electrical  
17                   excitation signal to said sample, The device defined in claim 8  
18                   wherein the tip of said spike being composed a more noble metal  
19                   than said jacket.

1           10. (Previously presented) The device defined in claim  
2       9 wherein the jacket is separated from the tip by an annular  
3       insulator.

1           11. (Previously presented) The device defined in claim  
2       10, further comprising a flexible electrical conductor extending  
3       upwardly through said tube and connected to said tip.

1           12. (Previously presented) The device defined in claim  
2       11, further comprising an insulator extending through said tube and  
3       separating said flexible electrical conductor from said jacket.

1           13. (Previously presented) The device defined in claim  
2       10, further comprising a solid metal rod or tube extending upwardly  
3       from said tip through said jacket to supply an electrical potential  
4       measurement to an electric circuit.

1           14. (Previously presented) The device defined in claim  
2       13, further comprising an insulating tube surrounding said solid  
3       metal rod or tube for insulating said solid metal rod or tube from  
4       said jacket.

1               15. (Currently amended) An apparatus for measuring  
2 conductivity of a sample, comprising two electrode bodies each  
3 formed with two electrically separate surfaces positioned to  
4 contact simultaneously a sample, said electrode bodies being spaced  
5 apart in said sample for characterizing the sample in between the  
6 two electrode bodies;

7               a electrical excitation source connected to one of said  
8 surfaces of each electrode body for feeding an electrical  
9 excitation signal through said sample; and

10               [[an]] a high ohmic electrical potential measuring unit  
11 connected to the other of said surfaces of each electrode body for  
12 measuring an electrical potential across said sample resulting from  
13 application of said electrical excitation signal to said sample.

1               Claim 16. (Currently amended) A device for measuring a  
2 three-dimensional tomographic electrical conductivity distribution  
3 in a sample, comprising a plurality of electrode spikes driven into  
4 the ground in spaced-apart relationship, whereby said spikes  
5 characterize physical soil characteristics in between the spikes,  
6 each of said spikes comprising an electrode body formed with two  
7 electrically separate surfaces positioned to contact simultaneously  
8 said sample;

9                   a electrical excitation source connected to one of said  
10          surfaces of each spike for feeding an electrical excitation signal  
11          to said sample; and

12                [[an]] a high ohmic electrical potential measuring unit  
13          connected to the other of said surfaces of said spikes for  
14          measuring an electrical potential in said sample resulting from  
15          application of said electrical excitation signal to said sample.

1                Claim 17. (Previously Presented) A device for  
2          measuring electrical potential in the ground, comprising:

3                an electrode body in the form of a spike adapted to be  
4          driven into the ground and having an electrically conductive metal  
5          jacket and an electrically conductive metal point electrically  
6          insulated from the jacket and composed of a metal more noble than  
7          the metal of said jacket;

8                an electrical excitation source connected to the jacket  
9          for feeding an electrical excitation signal to the ground; and

10               an electrical potential measuring unit connected to said  
11          point for measuring electrical potential in the ground resulting  
12          from application of said electrical excitation signal thereto.